The Nearctic Doryctinae, IX. The Genus *Odontobracon* and Notes on Related Genera

(Hymenoptera: Braconidae)

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Within the Doryctinae is a group of genera all of which possess one constant character shared by no other genera, namely the extension of the postnervellus of the hind wing distally toward the wing apex (Fig. 12). They also have a characteristic oval-shaped raised area on abdominal tergum 2 + 3 (Fig. 11), but this is somewhat more variable than the wing venation. The teeth on the dorsum of the hind coxae were previously considered diagnostic, but they do not occur in all of these genera, and are present in other doryctine genera which do not possess the extension of the postnervellus or the characteristic sculpturing of the abdominal terga.

The genera involved are *Odontobracon* Cameron, *Zombrus* Marshall, *Liodoryctes* Szépligeti, *Nervellinus* Roman, *Holcobracon* Cameron, and *Lophogaster* Granger. Various authors in the past have expressed different views concerning these genera, particularly *Zombrus* and *Odontobracon*; some have kept them as separate genera, others have synonymized one with the other. However, it appears that each of the above genera is not only distinct morphologically, but geographically—e.g., *Zombrus* is exclusively Oriental and Ethiopian, *Odontobracon* is exclusively Neotropical and Nearctic, etc.—and I believe it is advisable to retain each as a distinct genus. They can be distinguished by the following key:

1. Hind coxae with two teeth dorsally, one long and one short 2
   Hind coxae with one long tooth or no teeth dorsally 3
2. Notauli present; occipital carina present ..... *Zombrus* Marshall
   Notauli absent; occipital carina absent ..... *Liodoryctes* Szépligeti
3. Hind coxae with one long tooth dorsally ..... *Odontobracon* Cameron
   Hind coxae without teeth dorsally 4
4. Radiellen cell of hind wing divided by a spurious cross vein ..... *Nervellinus* Roman
   Radiellen cell without a cross vein 5
5. Cubitella of hind wing arising from junction of postnervellus and basella ..... *Holcobracon* Cameron
   Cubitella arising from middle of basella ..... *Lophogaster* Granger

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ZOMBRUS Marshall

Zombrus Marshall, 1897, p. 10. Type species: *Zombrus anisopus* Marshall, in Hungarian Natural History Museum, Budapest. Monotypic.

Trimorus Kriechbaumer, 1894, p. 60. Preoccupied by Foerster, 1856. Type species: *Trimorus nigripennis* Kriechbaumer, in Transvaal Museum, Pretoria, South Africa. Monotypic.

Neotrimorus Dalla Torre, 1898, p. 100. New name for *Trimorus* Kriechbaumer.

Acanthobracon Szépligeti, 1902, p. 47 (not *Acanthobracon* Kriechbaumer, 1900). Type species: *Acanthobracon fuscipennis* Szépligeti, in Hungarian Natural History Museum, Budapest. Designated by Viereck, 1914, p. 2.

Trichiobracon Cameron, 1905b, p. 104. Type species: *Trichiobracon pilosus* Cameron, in British Museum. Monotypic.

Trichodoryctes Szépligeti, 1906, p. 599. Type species: *Acanthobracon striolatus* Szépligeti, in Hungarian Natural History Museum, Budapest. Monotypic and original designation.

Oriental, Palearctic, Ethiopian, and Australian Regions. About 40 species have been described in this genus.

LIODORYCTES Szépligeti

Liodoryctes Szépligeti, 1906, p. 599. Type species: *Acanthobracon australiensis* Szépligeti, in Hungarian Natural History Museum, Budapest. Monotypic and original designation.

Neotrimoroides Strand, 1911, p. 104. Type species: *Neotrimoroides dentifer* Strand, in Zoological Museum, Humboldt University, Berlin. Monotypic. NEW SYNONYMY.

Australian Region. Five species have been described.

HOLCOBRACON Cameron

Holcobracon Cameron, 1905a, p. 89. Type species: *Holcobracon fulvus* Cameron, in British Museum (Natural History). Monotypic.

Neotropical and Oriental Regions. Three species have been described.

NERVELLINUS Roman

Nervellinus Roman, 1924, p. 5. Type species: *Nervellinus subdivisus* Roman, in Swedish Natural History Museum, Stockholm. Monotypic.

Neotropical Region. Only one species has been described. The placement of this genus here is based solely on the extension of the postnervellus. The sculpturing of the abdominal tergum 2 + 3 is much different from that in the other genera.

LOPHOGASTER Granger

Lophogaster Granger, 1949, p. 93. Type species: *Lophogaster seyrigi* Granger, in Muséum National d'Histoire Naturelle, Paris. Monotypic.

Madagascar. Only one species has been described.

Odontobracon Cameron

Odontobracon Cameron, 1887, p. 384. Type species: *Odontobracon nigriceps* Cameron, in British Museum (Natural History). Designated by Viereck, 1914, p. 103.

Head cubical; face very coarsely rugose; frons, vertex and temples smooth; frons excavated, divided by longitudinal ridge from median ocellus to between antennae; occipital carina distinct, not meeting hypostomal carina on sides; notauli distinct; sternaulus crenulate, shallow, nearly as long as mesopleuron; second cubital cell of fore wing quadrate, nervulus postfurcal; first segment of mediella of hind wing longer than second, postnervellus angled distally toward wing apex (Fig. 12); abdominal tergum 2 + 3 with large raised basal oval median area delimited by crenulate grooves (Fig. 11).

Nearctic and Neotropical Regions. Nine species have been described, six of which occur in the Nearctic Region.

Key to the Nearctic Species of Odontobracon

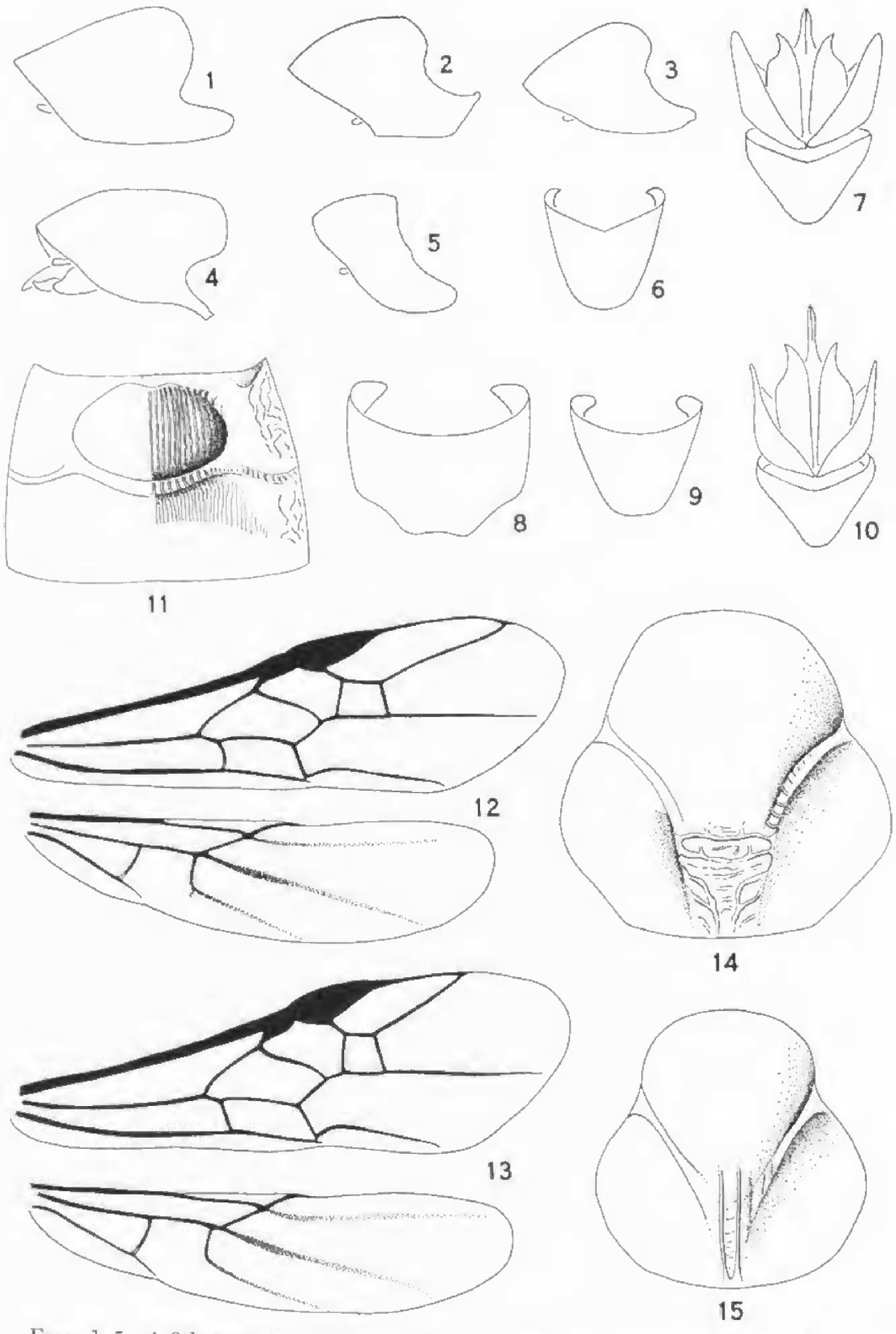
1. Radius of fore wing reaching wing margin well before wing apex, radial cell along wing margin at most as long as stigma (Fig. 13) ..... *cellulus* Marsh, n. sp.
   Radius reaching wing margin nearer apex of wing, radial cell along wing margin longer than stigma. (Fig. 12) 2
2. Malar space with distinct groove extending from base of eye to base of mandible ..... *oemeovorus* Rohwer
   Malar space without such groove 3
3. Notauli meeting posteriorly in wide, rugose, transversely striated or areolated area, usually without two longitudinal converging carinae (Fig. 14) 4
   Notauli meeting posteriorly in narrow longitudinally striate or carinated area, usually with two strong posteriorly converging carinae (Fig. 15) 5
4. Ovipositor longer than abdomen; first abdominal tergum nearly as long as apical width; subalar groove nearly smooth; large species, body length 15 mm or more ..... *grandis* Ashmead
   Ovipositor at most as long as abdomen, usually shorter; first abdominal tergum considerably wider at apex than long; subalar groove distinctly crenulate; smaller species, body length less than 15 mm ..... *nigriceps* Cameron
5. Propodeum aerolate posteriorly, basal carina absent posteriorly; mesonotum usually black ..... *montanus* Cameron
   Propodeum rugose posteriorly, basal carina forked posteriorly; mesonotum red ..... *californicus* Rohwer

Odontobracon californicus Rohwer

(Figs. 4, 9)

Odontobracon californicus Rohwer, 1917, p. 169. Holotype female, in U. S. National Museum.

Female.—Length of body, 6 mm; ovipositor, 2.5 mm. Color orange or red except black head, prothorax, upper part of mesopleuron and legs. Ocellocular distance about four times as long as lateral ocellus; malar space ⅔ eye height, without distinct groove from eye to mandible; frontoclypeal suture and anterior tentorial



FIGS. 1–5, ♂ 9th tergum, side view: 1, *Odontobracon montanus* Cam.; 2, *O. cellulus*, n. sp.; 3, *O. nigriceps* Cam.; 4, *O. californicus* Roh.; 5, *O. oemeovorus* Roh. FIGS. 7 & 10, ♂ genitalia, ventral view, somewhat diagramatic: 7, *O. oemeovorus*; 10, *O. cellulus*. FIGS. 6, 8 & 9, ♂ gonobase, ventral view: 6, *O. nigriceps*; 8, *O. montanus*; 9, *O. californicus*. FIG. 11, abdominal tergum 2 + 3, dorsal view, *O. nigriceps*. FIGS. 12 & 13, fore and hind wings: 12, *O. nigriceps*; 13, *O. cellulus*. FIGS. 14 & 15, mesonotum, dorsal view: 14, *O. nigriceps*; 15, *O. montanus*.

pits not deep; two posteriorly converging longitudinal carinae at junction of notauli before scutellar furrow; subalar groove crenulate; propodeum rugose on posterior surface, basal carina indistinctly forked posteriorly, sides of propodeum weakly punctate on lower half; second segment of radius of fore wing less than twice length of first segment; recurrent vein entering first cubital cell; cubitus between recurrent and first intercubitus about as long as first segment of radius; fore tarsus 1.4 times as long as fore tibia; first abdominal tergum wider at apex than long, tooth at basolateral corner not prominent, basal longitudinal carinae distinct; tergum 2 + 3 weakly striate beyond raised basal oval area; ovipositor slightly shorter than abdomen.

MALE.—Essentially as female; ninth tergum and gonobase (Figs. 4, 9), ninth tergum finely longitudinally striate, setae on distal edge scattered; ninth sternum with few scattered setae medially.

TYPE LOCALITY.—Santa Cruz Mountains, California.

DISTRIBUTION.—Known only from the type locality in California.

This species is easily distinguished by its size, color and thoracic sculpturing.

Odontobracon cellulus Marsh, new species

(Figs. 2, 10, 13)

FEMALE.—Length of body, 10–12 mm; ovipositor, 4–6 mm. Color of head, prothorax, mesonotum and sides of propodeum varying from red to black; mesopleural disc, propodeum dorsally and abdomen always red; legs usually black, rarely femora and coxae red. Ocellocular distance about twice as long as lateral ocellus; malar space ⅔ eye height, without groove from eye to mandible; anterior tentorial pits deep; triangular area where notauli meet before scutellar furrow transversely striate or rugose, rarely with two indistinct converging longitudinal rugae; subalar groove crenulate; propodeum areolated, basal carina present only dorsally; fore tarsus about 1.5 times as long as fore tibia; dorsal spine on hind coxa usually abruptly angled at apex; first segment of radius of fore wing less than twice as long as second segment; radial cell along wing margin at most as long as stigma, usually shorter, radius reaching wing margin well before wing apex (Fig. 13); recurrent vein entering first cubital cell; cubitus between recurrent and first intercubitus about as long as first segment of radius; first abdominal tergum wider at apex than long, tooth at basolateral corner very weak; tergum 2 + 3 usually striate beyond raised oval area, rarely smooth; fourth abdominal tergum sometimes striate at base; ovipositor nearly as long as abdomen.

MALE.—Essentially as female; ninth tergum and genitalia (Figs. 2, 10); sculpturing and setae on apical edge of ninth tergum as in *O. nigriceps*; ninth sternum with few scattered setae medially.

Holotype female, ALAMO CROSSING, YUMA COUNTY ARIZONA, 7 September 1959, Carl E. Benson, collector. U. S. National Museum type number 70853.

Paratypes.—ARIZONA: 1♀, Alamo Crossing, Yuma Co., 22 September 1959, Carl E. Benson; 1♀, Dobbs Spring, reared 21 April 1919,

Hopk. no. 10087k, G. Hofer, colr.; 1♀, mouth Bear Cyn., Sta. Catalina Mtns., 3 July 1961, Werner-Nutting; 1♂, Douglas, Cochise Co., 15 August 1958, P. M. Marsh; 1♀, Arizona-Son. Desert Mus., Pima Co., 5–8 August 1962, Nutting-Oman; 1♀, 2♂, Picture Rock Pass, Tucson Mtns., 25 July 1961, Werner-Nutting; 1♀, Portal, Cochise Co., 27 June 1958, W. F. Barr; 2♀, Sabino Canyon, 10 August 1953, 6 August 1959, Butler, Krombein; 2♀, Santa Rita Mtns., 4 September 1914; 1♀, near Sabino Canyon, Pima Co., R. H. Arnett, Jr.; 1♂, 8 mi. N. Vail, Pima Co., 30 August 1962, Werner-Nutting. CALIFORNIA: 1♀, Vallecitos, San Diego Co., 24 September 1936. NEW MEXICO: 1♀, Las Cruces, 26 July 1961. TEXAS: 1♀, 3 mi. E. Presidio, 1 May 1963, H. E. Evans. MEXICO: 1♂, MacDougal Crater, Penacate Mtns., 28 November 1959, G. D. Butler. Paratypes are deposited in the U. S. National Museum, University of Arizona, Canadian National Collection, and the Museum of Comparative Zoology.

This species is very similar to *O. nigriceps*, but the short radial cell of the forewing, the abruptly curved spine on the hind coxae, and the structure of the male genitalia distinguish *O. cellulus*.

Odontobracon grandis Ashmead

Odontobracon grandis Ashmead, 1894, p. 122. Holotype female, in U. S. National Museum.

Female.—Length of body, 16–20 mm; ovipositor, 11–14 mm. Color of head, prothorax, lateral mesonotal lobes, upper part of mesopleuron and legs black; abdomen, rest of thorax and area around mouth opening red. Ocellocular distance about 1.5 times as long as lateral ocellus; malar space about ⅔ eye height, without distinct groove from eye to mandible; frontoclypeal suture and anterior tentorial pits very deep, face very coarsely rugose; notauli obscured posteriorly by strong transverse striations in V-shaped area before scutellar furrow; subalar groove smooth or very weakly crenulate; propodeum areolated dorsally and posteriorly, rugose laterally, basal carina indicated dorsally only; fore tarsus 1.5 times as long as fore tibia; second segment of radius of fore wing twice as long as first segment; recurrent vein interstitial, or nearly so, with first intercubitus; cubitus between recurrent and first intercubitus, if present, much shorter than first segment of radius; first abdominal tergum longer than wide at apex, tooth at basolateral corner very prominent; tergum 2 + 3 strongly striate beyond raised basal oval area; fourth tergum striate at base; ovipositor longer than abdomen.

Male.—Unknown.

Type locality.—San Jose del Cabo, Baja California.

Distribution.—Arizona; Baja California.

This species, one of the largest in the genus, can be separated from *O. nigriceps* by its size, longer ovipositor and first abdominal tergum, and its thoracic sculpturing.

ODONTOBRACON MONTANUS Cameron
(Figs. 1, 8, 15)

Odontobracon montanus Cameron, 1887, p. 384. Holotype female, in British Museum (Natural History).

Odontobracon crassiventris Cameron, 1887, p. 385. Holotype female, in British Museum (Natural History). NEW SYNONYMY.

FEMALE.—Length of body, 7–14 mm; ovipositor, 3–7 mm. Color of head, thorax and legs black; abdomen red; mesonotum occasionally and dorsum of propodeum frequently red; base of middle tibia white. Ocellocular distance 2–2.5 times as long as lateral ocellus; malar space ¾ eye height, without groove from eye to mandible; anterior tentorial pits deep; two parallel longitudinal carinae at junction of notauli before scutellar furrow (Fig. 15); subalar groove weakly crenulate, sometimes smooth; propodeum areolated dorsally and posteriorly, laterally punctate or occasionally smooth, basal carina obscured on posterior face of propodeum; fore tarsus 1.6 times as long as fore tibia; second segment of radius of fore wing about 2.5 times as long as first segment; recurrent vein entering first cubital cell; cubitus between recurrent and first intercubitus about as long as first segment of radius; first abdominal tergum wider at apex than long, tooth at basolateral corner weak; tergum 2 + 3 striate beyond basal raised oval area; fourth tergum striate at base; ovipositor about as long as abdomen.

MALE.—Essentially as female; mesopleuron, propodeum and hind coxae red; third and fourth abdominal terga rugose at base; ninth tergum and gonobase (Figs. 1, 8); sculpturing and setae on distal edge of ninth tergum similar to *O. californicus*; ninth sternum with scattered setae medially.

TYPE LOCALITY.—Irazu, Costa Rica.

DISTRIBUTION.—Alabama, Florida, Georgia, North Carolina, South Carolina, Texas; Costa Rica; British Honduras; Guatemala; Panama.

Specimens of this species have been previously confused with *O. elaphidiovorus* (now a synonym of *O. nigriceps*) but can be distinguished by the different sculpturing where the notauli meet on the mesonotum.

ODONTOBRACON NIGRICEPS Cameron
(Figs. 3, 6, 11, 12, 14)

Odontobracon nigriceps Cameron, 1887, p. 385. Holotype female, in British Museum (Natural History).

Odontobracon elaphidiovorus Rohwer, 1917, p. 168. Holotype female, in U. S. National Museum. NEW SYNONYMY.

FEMALE.—Length of body, 8–13 mm; ovipositor, 3–6 mm. Head black, rarely marked with red; pro- and mesothorax varying from entirely red to black; propodeum and abdomen always red; legs black. Ocellocular distance twice as long as lateral ocellus; malar space about ¾ eye height, without groove from eye to mandible; anterior tentorial pits not deep; notauli obscured posteriorly by V-shaped transversely rugose area before scutellar furrow (Fig. 14); subalar groove strongly crenulate; propodeum areolated, basal carina present only dorsally; fore tarsus 1.25 times as long as fore tibia; dorsal tooth on hind coxa broadly curved, not

abruptly angled at apex; second segment of radius of fore wing about twice as long as first segment (Fig. 12); radial cell along wing margin longer than stigma, radius reaching wing margin near wing apex; recurrent vein entering first cubital cell; cubitus between recurrent and first intercubitus about as long as first segment of radius; first abdominal tergum wider at apex than long, tooth at basolateral corner very weak; tergum 2 + 3 usually striate beyond raised oval area, occasionally smooth (Fig. 11); fourth tergum sometimes striate at base; ovipositor at most as long as abdomen, usually shorter.

MALE.—Essentially as female; ninth tergum and gonobase (Figs. 3, 6); sculpturing on dorsum of ninth tergum transverse, fingerprint-like, distal edge with dense fringe of setae; ninth sternum with few scattered setae medially.

TYPE LOCALITY.—St. Gerónimo, Guatemala.

DISTRIBUTION.—Arizona, Arkansas, Connecticut, Florida, Georgia, Illinois, Massachusetts, Mississippi, Nevada, New Jersey, New Mexico, North Carolina, Pennsylvania, Texas, Utah, West Virginia, Wisconsin; Mexico; Guatemala.

HOST.—*Elaphidion villosum* F.

ODONTOBRACON OEMEOVORUS Rohwer

(Figs. 5, 7)

Odontobracon oemeovorus Rohwer, 1917, p. 167. Holotype female, in U. S. National Museum.

FEMALE.—Length of body, 7–9 mm; ovipositor, 2–3 mm. Color of head, thorax and legs black; abdomen red; propodeum occasionally red. Ocellocular distance twice as long as lateral ocellus; malar space about ⅔ eye height, with distinct groove extending from base of eye to base of mandible; anterior tentorial pits and frontoclypeal suture not deeply excavated; two longitudinal carinae on mesonotum converging before scutellar furrow at junction of notauli with rugae or carinae between; subalar groove strongly crenulate; propodeum entirely areolate, somewhat rugose on sides, basal carina present only dorsally; fore tarsus 1.3 times as long as fore tibia; second segment of radius of fore wing slightly less than twice as long as first segment; recurrent vein entering first cubital cell; cubitus between recurrent and first intercubitus about as long as first segment of radius; first abdominal tergum wider at apex than long, tooth at basolateral corner not distinct; abdomen usually smooth beyond raised oval area of tergum 2 + 3; ovipositor shorter than abdomen.

MALE.—Essentially as female; abdominal tergum 2 + 3 striate beyond raised oval area; ninth tergum and gonobase (Figs. 5, 7); sculpturing and distal fringe of setae on ninth tergum as in *nigriceps*; ninth sternum entirely covered with setae.

TYPE LOCALITY.—Appalachicola, Florida.

DISTRIBUTION.—Alabama, Florida, Illinois, Maryland, Michigan, Pennsylvania, Texas.

HOST.—*Oeme rigida* (Say).

The groove on the malar space will immediately distinguish this species.

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